

*Claims*

What is claimed is:

1.(Currently Amended) A sensor system with variable sensor-signal processing, comprising:

a integrated circuit sensor unit that includes

(i) a sensor element that provides a sensed signal in response to a measurement variable, and

(ii) a memory device that stores adjustable coefficient values; and

(iii) a sensor signal processing unit that processes said sensed signal using adjustable coefficient values to provide a sensor output signal on a output line indicative of the measurement variable,

wherein said integrated circuit sensor unit ~~sensor system~~ receives updated adjustable coefficient values via said output line and stores said updated adjustable coefficient values in said memory device.

2.(Previously Presented) The sensor system of claim 1, further comprising an analytical unit that receives said sensor output signal and provides said updated coefficient values.

3.(Currently Amended) A sensor system with variable sensor-signal processing, comprising:

a integrated circuit sensor unit that receives power via a first line and includes

(i) a sensor element that provides a sensed signal in response to a measurement variable, and

(ii) a memory device that stores adjustable coefficient values; and

(iii) a sensor signal processing unit that processes said sensed ~~sensor~~-signal using

adjustable coefficient values to provide a sensor output signal on a second line indicative of the measurement variable,

wherein said integrated circuit sensor unit system receives updated adjustable coefficient values via said first line and stores said updated adjustable coefficient values in said memory device.

4.(Cancelled)

5.(Cancelled)

6.(Currently Amended) The sensor system of claim 2, wherein said adjustable coefficient values can be transmitted by the change of an output load ( $I_{load}$ ) on said output line between said ~~sensor signal~~ sensor signal processing unit and said analytical unit.

7.(Currently Amended) The sensor system of claim 6 wherein the output load ( $I_{load}$ ) is continuously variable.

8.(Previously Presented) The sensor system of claim 6, wherein the output load ( $I_{load}$ ) is stepwise variable.

9.(Currently Amended) The sensor system of claim 3, wherein said updated adjustable coefficient values can be transmitted to said sensor unit by changing a supply voltage ( $U_s$ ) on said first line for said sensor unit.

10.(Cancelled)

11.(Cancelled)

12.(Cancelled)

13.(Cancelled)

14.(Cancelled)

15.(Cancelled)

16.(Cancelled)

17.(Cancelled)

18.(Cancelled)

19.(Cancelled)

20.(Cancelled)